



## Planning Department

**TOWN OF ACTON**  
472 Main Street  
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### **INTERDEPARTMENTAL COMMUNICATION**

**To:** Planning Board

**Date:** May 5, 2005

**From:** Kristin K. Alexander, AICP, Assistant Town Planner

**Subject:** Stormwater Management Regulations Comparison

*R.B.*

The Town has been working on the National Pollution Discharge Elimination System (NPDES) Storm Water Program. Attached are: (1) the executive summary of the Town's 5 year plan for compliance with the NPDES requirements; (2) a memo Doug Halley sent to the Planning Board last year regarding the Board's involvement with the 5 year plan, and (3) the Town's Draft Year Two Compliance Report, to provide you with some history of the Storm Water Program. As part of the Storm Water program, the Town hired Woodard & Curran to develop a Storm Water Management Plan (which has been completed).

To assist with the Town's efforts in achieving the goals of the Town's Storm Water Management Plan, I have reviewed and compared the State Stormwater Management Policy Handbook (SHP) to Acton's Zoning Bylaw (Bylaw) and Subdivision Rules and Regulations (Rules). Attached is a table highlighting where there are potential inconsistencies between the SHP and the Bylaw and Rules.

In summary, I found that there are over 65 sections that involve storm water management in the Bylaw and Rules. Out of those sections, over 45 of them should be further evaluated in relation to State Storm Water Management Regulations. In some cases, the Town requirements appear more restrictive, and in some cases, the State requirements appear more restrictive. The main storm water management issues that should be further evaluated include:

- Calculating groundwater recharge
- Discharging surface water (on and off site)
- Defining and regulating different types of impervious cover
- Determining best management practices (BMPs) suitable for Acton & consistent with SHP
- Evaluating 100-year 24-hour storms
- Working with incongruencies between the SHP and other State laws

It appears that SHP standards prefer above ground solutions to storm water management (verse underground) and that limit the use of curbs, catchbasins, drainage pipes, etc. The SHP encourages filter storm water through vegetated areas before discharging the water into wetlands and water bodies. While the intentions of these standards are admirable, it is our belief that keeping all structures above ground, reducing the use of curbing and piping, and trying to size above ground structures to capture runoff, will eventually lead to larger storm water management

areas and sprawl. The above ground solutions are not really practical in Acton's village areas. These differences in philosophy will prove challenging when trying to work on the Storm Water Management Program.

Based on the preliminary comparison, staff recommends the following next steps:

- Conducting a detailed analysis of the sections identified in the attached table to identify discrepancies between State and Town storm water regulations;
- Having the Planning Department, Health, Engineering, Building, and Natural Resources Departments work together to:
  - address any discrepancies between State and Town storm water management regulations;
  - incorporate low impact development solutions (LIDs) into the Bylaw and Rules where feasible;
  - determine where storm water regulations should be located in the Town bylaw and which departments or agencies should be responsible for reviewing, monitoring, and enforcing storm water management plans and facilities in the future.

Dough Halley, Health Director for the Town, and Jane Ceraso Environmental Manager for the Acton Water District will attend the discussions at the upcoming Board meeting. In addition, Peter Shanahan from MIT will be attending with some of his students to present the results of a student project study on the subject.

ACTON ZONING BYLAW (Bylaw)		STATE STORMWATER POLICY HANDBOOK (SPH)		NOTES
Section	Requirement	Number	Standard	
Entire Bylaw (& Subd. Rules)	"Applicability"		For projects of any size, direct discharges of untreated stormwater from pipes to wetlands or waters are not allowed.	The implementation of the Bylaw and Subdivision Rules generally follows this standard, but it is not specifically written anywhere in the Bylaw or Rules.
3.5.17.12	Contents of a Golf Course Special Permit application	9	Stormwater management systems (SMS) must have an operation & maintenance plan	Bylaw doesn't specifically reference that information on infrastructure operations and maintenance after construction must be submitted.
3.8.1.5.k	Adequate drainage shall be provided for Common Drives	2,4,5,9	Requirements: Post-development = or < pre-development peak discharge; system must remove 80% of the average annual load of total suspended solids (TSS); BMPs in critical areas; operation & maintenance plan	Bylaw discusses drainage onto streets & subsurface discharge to a public drain – unable to find any specific references to these issues in the SPH, but the overall goal and result of this Bylaw section is consistent with SPH standards. Bylaw discusses design based on a 10-year storm only, but SPH also discusses 100-year storm.
3.8.1.5.l	Common Drive design requirements	4,5	System must remove 80% of TSS; BMPs required in critical areas	Bylaw Common Drive design standards are very general so cannot determine complete consistency w/SPH BMP standards
4.1	Flood Plain Overlay District	1-9	No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of MA; stormwater discharges to critical areas must utilize certain BMPs	Bylaw section 4.1 should probably refer to SPH and the general purposes of SPH
4.1.9	Submittal requirements for persons wanting to erect a structure, excavate, fill, grade, etc. in the floodway or floodway fringe	8	Erosion and sediment controls must be implemented	Bylaw section might need to require an erosion & sediment control plan be submitted

4.2.3.5.e	Common land in open space developments (OSDs) may contain stormwater detention & retention facilities	4,5	System must remove 80% of TSS, BMPs required in critical areas	Unsure if the stormwater infrastructure standards in this section of the Bylaw are consistent w/SPH
4.3	Groundwater Protection District requirements	6	Discharges to critical areas must utilize certain BMPs	"Critical areas" as defined by SPH includes cold water fisheries and surface drinking water. If Acton has any cold water fisheries and/or Nagog Pond isn't completely surrounded by Town of Concord land, these Bylaw requirements might have to be extended to those areas too.
4.3.3.8	Definition of Impervious Cover	4,5,6		The Bylaw and SPH define impervious cover differently. For example, the Bylaw doesn't differentiate between different roof types – they're all considered impervious.
4.3.5	Depth to Groundwater	"Applicability"	Roof runoff except from certain metal roofs may be infiltrated. If infiltration is allowed, roofs do not count as impervious cover.	Bylaw requirements for Groundwater Protection Zones 1-3 do not apply to any single-family residential uses or buildings.
4.3.5.3	Design of Groundwater Recharge Facilities in Zones 1-3	4,6	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	Unsure whether SHP pre-treatment standards & other standards would apply to Bylaw section 4.3.5.3.
4.3.6.2	Watershed Recharge	3	Pretreatment is required for certain BMP technology	Annual groundwater recharge from post-development should approximate the annual recharge from pre-development or existing conditions, based on soil types
4.3.6.3	Treatment & Renovation of runoff in Zones 1-3	4,6	Discharges to critical areas must utilize certain BMPs	The Bylaw requirement appears similar requiring that post development recharge cannot be less than pre-development recharge
4.3.7.2	Prohibited Uses in Zones 1-3	4,6	Discharges to critical areas must utilize certain BMPs	Unsure whether stormwater facilities in Bylaw are consistent with SHP BMPs
				Unsure whether SHP prohibits certain uses altogether from critical areas (similar to the Bylaw)

4.3.8.1	Change or substantial extension of an existing use located but prohibited in a groundwater protection zone	7	Allowed redevelopment = development, rehab., expansion, & phased projects on previously developed sites, provided there is no net increase in impervious area	The Bylaw “substantial extension” definition & the SHP “redevelopment” definition are slightly different but touch on overlapping issues.
6.7 (1 <sup>st</sup> par.)	Parking lot design requirements	“Applicability”	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	Bylaw is based on the number of parking spaces and SHP is based on the number of lots. Bylaw also doesn't discuss parking lot drainage design in detail.
6.9.4.6	West and South Acton Village Parking Lot Design Requirements	“Applicability”	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	See notes on Bylaw section 6.7 (above). Also, Bylaw discusses “adequate drainage” – which may need further definition.
9.6.2.6 & 9B.7 & 9A.7.6	Stormwater Runoff in PCRCs, Senior Residences, and Planned Unit Developments	2	Controls must be developed for 2-year & 10-year 24-hour storm events, and 100-year 24-hour storm events must be evaluated	Bylaw discusses design based on a 10-year storm only.
9.6.3.2.e & 9B.9.2.5	Stormwater Facilities in PCRC and Senior Residence Common Areas	4,5,6	System must remove 80% of the average annual load of total suspended solids (TSS) discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs	Bylaw lists the types of stormwater management facilities allowed. Some of these facilities are generally not preferred by SHP, but aren't necessarily inconsistent with SHP standards.
10.4.3.1	Site Plan Special Permit Site Design Standards	2	Controls must be developed for 2-year & 10-year 24-hour storm events, and 100-year 24-hour storm events must be evaluated	Bylaw discusses design based on a 25-year storm only. Bylaw discusses prevention of drainage overflow on a street – can't find a SHP reference to street overflow. Bylaw does not discuss runoff onto adjacent properties.
4.3.6.5, 9.7, 9B.13, 9A.7.3				If stormwater management sections of the Bylaw (in this table) change, these sections might also need to change for consistency within the Bylaw.

ACTION SUBDIVISION RULES AND REGULATIONS (Rules)		STATE STORMWATER POLICY HANDBOOK (SPH)		NOTES
Section	Requirement	Number	Standard	
2.5	References			The Rules refer to agencies whose names have changed. Names of documents referenced in the Rules have to be reviewed to see if they need to be changed.
3	Approval Not Required (ANR) Plans	Page 1-13	SHP does apply to a series of ANR lots under the Subdivision Control Law	Rules do not apply stormwater management standards to ANRs because State Subdivision Control Law does not give the Town the authority to do so. State laws conflict.
5.3.18	Contents of a Definitive Plan: Storm drainage runoff calculations	2,4,5,6	100-year 24-hour storm events must be evaluated, system must remove 80% of the average annual load of total suspended solids (TSS); certain BMPs are required where discharge is from higher potential pollutant loads and in critical areas	Unsure whether Rules' formula for calculating runoff is consistent with SHP. Rules do not discuss 100-year storm event or different standards for critical areas.
5.3.19	Contents of a Definitive Plan: Detail of Typical cross-section of roadway	4,5,6	System must remove 80% of the average annual load of total suspended solids (TSS), discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs	Rules list the types of stormwater management facilities allowed/to be shown. It appears the SHP prefers to minimize the use of pipes and gas trap/oil separator catchbasins.
5.3.20	Contents of a Definitive Plan: Surface water that drains onto adjacent streets or properties	2	Post-development = or < pre-development peak discharge	Rules discuss prevention of drainage overflow on adjacent streets & properties – can't find a SHP reference to the issue.
5.3.22	Contents of a Definitive Plan: Erosion & sedimentation control plan	4,5,6,8	System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required	Rules refer to a different erosion control document than SHP – so unsure if consistent.

			to use certain BMPs; erosion and sediment controls must be implemented	8.2.1 of Rules discuss a manhole system, and 8.2.2.1 discusses drainage structures. These structures that are generally not preferred by SHP, but aren't necessarily inconsistent with SHP standards. 8.2.2.4 - 8.2.3.2 of Rules discuss design based on a 10-year storm only.
8.2	Design Standards: Drainage	2,4,5,6	100-year 24-hour storm events must be evaluated; system must remove 80% of the average annual load of total suspended solids (TSS); certain BMPs are required where discharge is from higher potential pollutant loads and in critical areas	8.3.2 – 8.3.4 of Rules list types of erosion control measures. These structures that are generally not preferred by SHP, but aren't necessarily inconsistent with SHP standards. 8.3.5 of Rules discusses velocity check dams. Unsure if SHP recommends them and if so, if Rules' requirements are consistent.
8.3	Design Standards: Erosion & Sediment Control	4,5,6,8	System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs; erosion and sediment controls must be implemented	Rules discuss that all street drainage in Zones 1-3 must be funneled into gas trap catch basins – which isn't a preferred method in the SHP, but not necessarily inconsistent with the SHP. Rules also only discuss impervious cover related to streets – not other impervious cover because State Subdivision Control Law does not provide the Town with the authority to control impervious cover on individual residential lots.
8.5.1	Subdivision Standards in Groundwater Protection District: Street drainage	4,5,6	System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs	

			In the Rules, some of the design details related to retention ponds (pond lining, diversion box, etc., are generally not preferred by SHP, but aren't necessarily inconsistent with SHP standards. Also, see the 2 <sup>nd</sup> note under 8.5.1 above related to other impervious cover.
8.5.2	Subdivision Standards in Groundwater Protection District: 1 <sup>st</sup> inch of every storm event	4,5,6	System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs
8.5.4	Subdivision Standards in Groundwater Protection District: Groundwater recharge in Zones 1-4	3	Annual groundwater recharge from post-development should approximate the annual recharge from pre-development or existing conditions, based on soil types
8.7.3	Easements for drainage across lots		
9.2.1 - 9.2.4	Utilities:	4,5,6	<p>System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs to use certain BMPs</p> <ul style="list-style-type: none"> <li>• Construction of drain pipes and related equipment</li> <li>• Adequate disposal of surface water</li> <li>• Sub-drains</li> <li>• Open drainage trenches</li> </ul>
9.8.3	Trees and Other Vegetation	8	Erosion and sediment controls must be implemented
			Rules refer to seeding for erosion control where the SHP refers to hydroseeding. Rules also refer to wood chips, mulch, and sodding –

			unsure if consistent w/SHP.
11.4.5.2	Administration: Inspection	4,5,6	<p>System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs to use certain BMPs</p> <ul style="list-style-type: none"> <li>In DIR, the "Soil Conservation Service" should be updated with the new agency name. Unsure if soil type categories in the DIR are consistent with soil categories referenced in SHP.</li> <li>In the Rules, "NPDES" is misspelled.</li> <li>Rules discuss design based on a 10-year storm only.</li> </ul>
DIR – A.10., C.34., E.46.	Development Impact Report (DIR):	2,3	<p>Controls must be developed for 2-year &amp; 10-year 24-hour storm events, and 100-year 24-hour storm events must be evaluated; annual groundwater recharge from post-development should approximate the annual recharge from pre-development or existing conditions, based on soil types</p> <ul style="list-style-type: none"> <li>In the Rules, "NPDES" is misspelled.</li> <li>Rules discuss design based on a 10-year storm only.</li> </ul>
	Special Permit Rules and Regulations		All Town special permit rules and regulations should be reviewed for consistency w/SHP.



## EXECUTIVE SUMMARY

### Introduction

Contaminated storm water runoff is a leading contributor to water quality problems in this nation's surface waters. Even though regulations have been in place for many years regarding the treatment and disposal of municipal and industrial waste streams, the majority of storm water runoff flows untreated into the nation's surface waters.

The National Pollution Discharge Elimination System (NPDES) Storm Water Program is a nationwide, two phase program aimed at reducing the impacts of storm water on the nation's surface waters. Phase I of the program requires permitting of Municipal Separate Storm Sewer Systems (MS4s) serving populations of 100,000 persons or greater. Phase II of the NPDES program requires storm water permitting for communities with smaller populations and urbanized areas such as the Town of Acton.

The Town of Acton is very interested in improving surface water quality and has for many years included programs that address watershed health. The Town is committed to compliance with the Environmental Protection Agency's (EPA's) Phase II requirements. Historically, Acton has been proactive with storm water management. They have partnered with local organizations such as SuAsCo (Sudbury/Assabet/Concord Rivers Organization) and OAR (Organization for the Assabet River) and regularly operate and maintain their storm sewer system through catch basin cleaning and street sweeping programs. The program outlined herein will take storm water management in Acton to the next level.

### Storm Water Management Plan

The Storm Water Management Plan (SWMP) takes advantage of ongoing and planned efforts wherever possible. The overall level of effort to comply with the final SWMP will be determined by three factors:

- Requirements of the SWMP based on EPA's NPDES Phase II Final Rule and Massachusetts' Final NPDES General Permit
- The mitigation of threats to public and environmental health
- The financial and staffing resources of Acton

Although the Town is obligated to meet EPA's requirements, the five year plan will be modified in the event that one or more of these factors changes from its current status.

We have organized Acton's SWMP to be consistent with EPA and Massachusetts Department of Environmental Protection (MADEP) standards for the six Minimum Controls Measures (MCMs) outlined by EPA for implementation as part of the Phase II requirements. They include:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post- Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

## Recommendations

- Small MS4s must meet the Eligibility Criteria, defined in the Phase II General Permit Part I.B. Submission of a signed NOI will be deemed to constitute certification of eligibility under the General Permit. Information used to determine eligibility must be maintained as part of the Storm Water Management Program. Eligibility criteria should be reassessed yearly during the reporting period including through investigations the effects of storm water runoff on critical habitat and historic properties. A thorough investigation including a physical inspection of the related areas will be required to fully understand how these areas are affected by storm water runoff.
- If it is determined that the impacts posed by storm water runoff to critical habitat and historic properties is minimal, we recommend that the Town consider creating bylaws to further protect these areas from future development that could lead to runoff impacts.
- Woodard & Curran recommends that Acton review this plan every quarter to make sure that the BMPs are being implemented within the timeline that has been identified by MADEP and in the Notice of Intent (NOI) submitted by the Town. If during a quarterly review, it is determined that the implementation of a scheduled BMP is not possible due to financial constraints or other reasons, we recommend that the Town write a memo to MADEP to explain the situation and the reasons that implementation is not possible at this time. Then, during the annual reporting process a new schedule should be submitted.
- Storm water management is best approached proactively. Long-term solutions to storm water challenges should receive priority. During each budgeting season it will be important to assess the budgetary needs for the Board of Health, Conservation Commission, Planning Department, Recreational Department and the Department of Public Works for planning and resource allocation.
- Although partnering with non-profit organizations such as SuAsCo can be part of public education and outreach activities as well as public involvement and participation, it is important that the Town not rely solely on SuAsCo's efforts since Acton is accountable to MADEP for its own storm water management program.
- Woodard & Curran recommends that the Board of Health be the clearing house for maintaining an up to date SWMP since annual reporting falls under their responsibility, as stated in the NOI. A copy of the SWMP should also be located at the DPW, Conservation Commission, Recreational Department and the Planning Department, all of whom have responsibilities for implementing portions of the program. All departments should provide yearly reports with attachments to the Board of Health to ensure reporting requirements are being met.
- MADEP requires that the Town review the SWMP and submit a report to MADEP each year. To support this annual report, it is imperative that the Town maintain records of storm water management activities. This record keeping can also help to support an asset management plan, should the Town wish to pursue one. This package provides the mechanism to maintain consistent record-keeping for the reporting requirements.



## INTERDEPARTMENTAL COMMUNICATION

Acton Board of Health - Telephone 978-264-9634 - Fax 978-264-9630

April 30, 2004

TO: Planning Board  
FROM: Doug Halley, Health Director  
SUBJECT: NPDES Permit Requirements

Last year the requirements for the National Pollution Discharge Elimination System (NPDES) Storm Water Program were put in place for smaller communities like Acton. In response to those requirements the Town hired Woodard & Curran to develop a Storm Water Management Plan. A copy of the Executive Summary for the Plan is attached with this memo.

The plan addresses six required elements of Minimum Control Measures identified by EPA. These elements are as follows:

1. Public Education & Outreach
2. Public Participation/ Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention/ Good Housekeeping

Two of these elements (Construction Site Runoff Control & Post-Construction Runoff Control) typically fall under the jurisdiction of the Planning Board. The first permit year (2003-2004) required no actions to be taken on these elements. However, the Storm Water Management Plan specifies that the Town will begin an in-house assessment of these two elements in the second permit year (2004-2005).

In order to achieve this goal the Town needs to identify what actions the Planning Board can take in the next year to further the goals of the Storm Water Plan (attached is a copy of the goals achieved for the first permit year and the goals predicted for the second permit year). At a minimum EPA expects the following be assessed for Construction Site Runoff Control:

- A. Existing regulations that require erosion and sediment controls; the sanctions that ensure compliance.
- B. Existing requirements for construction site operators to implement appropriate erosion and sediment control best management practices.
- C. Existing requirements for construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- D. Existing procedures for site plan review which incorporate consideration of potential water quality impacts.
- E. Existing procedures for receipt and consideration of information submitted by the public.
- F. Existing procedures for site inspection and enforcement of control measures.

In addition at a minimum EPA expects the following be assessed for Post-Construction Runoff Control:

- A. Existing strategies which include a combination of structural and/ or non-structural best management practices (BMP's) appropriate for the Town.
- B. Existing ordinances or other regulatory mechanisms that address post-construction runoff from new development and redevelopment projects.
- C. Viability of the existing assurance of long-term operation and maintenance of BMP's.

With this memo please find attached the general guidance from EPA. For more specific guidance the following website can be accessed:

[http://cfpub2.epa.gov/npdes/stormwater/menufbmps/BMP\\_files.cfm](http://cfpub2.epa.gov/npdes/stormwater/menufbmps/BMP_files.cfm)

The Town has submitted its an annual report at the end of April and needs to submit a modification to that report should the Planning Board determine they can not meet the above described goals. If the Planning Board could specify what they believe can be accomplished in the next year the plan can be amended accordingly.

For the Planning Board's information the following are some of the minimum Best Management Measures for Construction Site Runoff Control that EPA recommends:

- Land Clearing (exposed soils are vulnerable to erosion)
- Permanent Diversions (direct clean runoff away from exposed areas)
- Preserving Natural Vegetation (safety fencing to limit work area)
- Construction Entrances (devices to remove dirt from truck tires)
- Check Dams (reduce the energy of Stormwater)
- Filter Berms (slows, filters and diverts flow)
- Grass-Lined Channels (filters and conveys runoff)
- RipRap (stabilizes drainage ways and outlets)
- Chemical Stabilization (reduces erosion where vegetation can't take)
- Mulching (stabilizes soils and reduces runoff velocity)
- Permanent Seeding (hydro-seeding)
- Sodding (stabilizes soils and reduces runoff velocity)
- Soil Roughening (driving tractor over soils temporarily stabilizes)
- GeoTextiles (protects from Stormwater erosion allows vegetative growth)
- Gradient Terraces (shorten slope length and reduce runoff velocity)
- Soil Retention (permanent retaining walls)
- Temporary Slope Drain (divert runoff and prevent erosion)
- Temporary Stream Crossings (prevent destruction of stream habitat)
- Vegetated Buffers (traps sediment and removes pollutants)
- Construction Sequencing (staged construction with immediate stabilization)
- Dust Control (prevents dust being transported by wind)
- Temporary Diversion Dikes, Earth Dikes and Interceptor Dikes (contains storm water onsite)
- Wind Fences and Sand Fences (traps blowing sand reducing off-site movement)
- Brush Barrier (traps sediment and removes pollutants)
- Silt Fence (prevents off-site transport of sediment)
- Sediment Basins and Rock Dams (traps sediment temporarily detains runoff)
- Sediment Filters and Sediment Chambers (inflow regulation, pretreatment, filters, outflow controls)
- Sediment Trap (collects sediment laden runoff)
- Storm Drain Inlet Protection (keeps sediment and pollutants out of drains)
- General Construction Site Waste Management (trash disposal, recycling, proper material handling, spill prevention and cleanup measures)
- Spill Prevention and Control Plan (protects storm drains from spills)
- Vehicle Maintenance and Washing Areas (designated controlled washing areas)
- Contractor Certification and Inspector Training (educate contractors about erosion and sediment control measures)
- Construction Reviewer (periodic inspection of construction sites)
- BMP Inspection and Maintenance (private inspection of BMP's required)
- Model Ordinances (erosion and sediment control regulations)

For the Planning Board's information the following are some of the minimum Best Management Measures for Construction Site Runoff Control that EPA recommends:

- Dry Extended Detention Pond (temporarily detain storm water runoff)
- Wet Ponds (detain storm water facilitate pollutant removal)
- Infiltration Basins (collect storm water removes pollutants)
- Infiltration Trench (storm water storage pollutant removal)
- Porous Pavement (reduces runoff)
- Bio-retention (collects and treats storm water)
- Sand and Organic filters (Challenged design sites)
- Storm water wetland (detrains storm water removes pollutants)
- Grassed Swales (Collects and treats storm water runoff)
- Grassed Filter Strip (protects water quality by filtering pollutants)
- Catch Basin Inserts (oil and grease, trash, debris and sediment removal)
- In-Line Storage (Catch basin flow restrictors to detain storm water)
- Manufactured products for storm water inlets (pollutant removal)
- Alum injection (precipitates pollutants)
- On-Lot Treatment (rain barrels to collect roof runoff)
- Buffer Zones (treats storm water)
- Open Space Design (creates buffers to sensitive areas)
- Conservation Easements (creates buffers to sensitive areas)
- Infrastructure Planning (long term goals of storm water collection)
- Narrower Residential Streets (reduces runoff)
- Eliminating curbs and gutters (promotes infiltration)
- Green Parking (promotes infiltration)
- Alternative Turnarounds (vegetated islands)
- Alternative Pavers (promotes infiltration)
- BMP Inspection and Maintenance (assurance BMP's effective)
- Ordinances for Post-construction Runoff
- Zoning (minimum lot size conservation zoning open space)



## ACTON BOARD OF HEALTH

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Douglas Halley  
Health Director

472 Main Street  
Acton, MA 01720

Telephone 978-264-9634  
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May 15, 2005

U.S Environmental Protection Agency  
Water Technical Unit  
P.O. Box 8127  
Boston, MA 02114

To Whom It May Concern:

Attached with this letter please find Acton's second Annual Report in compliance with its NPDES Phase II Small MS4 General Permit. This report contains the following information:

1. A self-assessment review of compliance with the permit conditions.
2. An assessment of the appropriateness of the selected BMP's.
3. An assessment of the progress towards achieving the measurable goals.
4. A summary of results of any information that has been collected and analyzed.
5. A discussion of activities for the next reporting cycle.
6. A discussion of any changes in identified BMP's or measurable goals.
7. Reference to any reliance on another entity for achieving any measurable goal.

Should you have any questions regarding the Town of Acton's NPDES Phase II Small MS4 Annual Report or the information attached please contact me at (978) 264-9634.

Sincerely,

Doug Halley  
Health Director

Cc: Massachusetts Department of Environmental Protection  
Division of Watershed Management  
627 Main Street  
Worcester, MA 01608

**Municipality/Organization:** Town of Acton

**EPA NPDES Permit Number:** MAR041238

**MaDEP Transmittal Number:** W-

**Annual Report Number  
& Reporting Period:** No. 1: May 04-May 05

## **NPDES PII Small MS4 General Permit Annual Report**

### **Part I. General Information**

Contact Person: Doug Halley Title: Health Director

Telephone #: (978) 264-9634 Email: [dhalley@town.acton.ma.us](mailto:dhalley@town.acton.ma.us)

#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:

Printed Name: Don P. Johnson

Title: Town Manager

Date: 4/30/04

## Part II. Self-Assessment

The Town of Acton has completed the required self-assessment and have determined that the Town is in compliance with all permit conditions, except for the following provisions:

**Part 2. PP-5** The Town was unable to find a grant to fund a new stenciling program. As an alternative the Town applied for and received a grant to place Stream Identification Signs.

**Part 3. ID-3** The Town was unable to obtain a grant from the Massachusetts Office of Coastal Zone Management to fund the Watershed Health Monitoring And Management Plan. As an alternative the Town will seek a grant from the 604(b) Water Quality Management Planning Grants to fund the Plan.

**Part 6. GH-1** The method to record storm water activities for Good Housekeeping and all Minimum Control Measures did not get finalized until late in the year. Due to that delay recording of all Storm Water Management Activities will not begin until Year 2.

**Part 6. GH-3** Tracking records for Catch Basins cleaned did not begin in Year One because the methodology for recording their cleaning was not established until late in the year.

## Part III. Summary of Minimum Control Measures

### 1. Public Education and Outreach

BMP ID#	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 2 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 3
PE-1	Partner w/Local Organization	Board of Health Director	Provide financial contribution to Partner w/ SUASCO WCC	On October 21, 2004 Acton was officially accepted into the SUASCO Watershed Community Council's "Storm Water Community Assistance Program" for Storm Water Phase II Permit Year 2 from July 2004 to June 2005.	Continue commitment to participate in the SUASCO Watershed Community Council's "Storm Water Community Assistance Program" for Storm Water Phase II Permit Year 3 from July 2005 to June 2006.
Revised					

PE-2	Develop Public Education Brochures/Flyers	Board of Health Director	Prepare/Distribute Storm Water Awareness Survey	The Stormwater Awareness Surveys were distributed at the April 2005 Annual Town Meeting and the September 2004 Hazardous Waste Day.	Two survey respondents will receive Stormwater Umbrellas at a public presentation as thanks for their participation. Stormwater Flyer will be sent out to Community Business'
Revised	Structural BMP Education	Board of Health Director	No Goal Established for Year One	Public Information Kiosk completed adjacent to constructed wetland that filters Stormwater to NARA public swimming area.	Opening Celebration for the North Action Recreation Area (NARA) constructed wetland BMP.
PE-3	Incorporate Storm Water into Public Meetings – Provide electronic media outlet.	Information Technology IT Director	Schedule Selectmen's Meeting to discuss Storm Water Management Plan (to be shown live on cable and taped for rebroadcast).	On May 24, 2004 the Board of Selectmen at their regularly scheduled meeting were updated on the NPDES Permit. They discussed the schedule of tasks, the anticipated costs and the potential of volunteer organizations assistance. The meeting was televised and rebroadcast one week later. A video tape is available for future showings.	Continue meeting with the Board of Selectman annually with televised replays.
PE-4	Incorporate Storm Water into Public Meetings – Provide electronic media outlet.	Information Technology IT Director	Schedule Selectmen's Meeting to discuss Storm Water Management Plan (to be shown live on cable and taped for rebroadcast).	On May 24, 2004 the Board of Selectmen at their regularly scheduled meeting were updated on the NPDES Permit. They discussed the schedule of tasks, the anticipated costs and the potential of volunteer organizations assistance. The meeting was televised and rebroadcast one week later. A video tape is available for future showings.	Continue meeting with the Board of Selectman annually with televised replays.
Revised					
PE-5	Incorporate Stormwater Education into School Lesson Plans	School Curriculum Director/ Health Director	Work with A/B School System to implement Lesson Plan developed by SUASCO	In September 2004 SUASCO delivered Lesson Plan which was then shared with the Curriculum Director for the A/B School System	Implement Stormwater Matters Lesson Plan for 5 <sup>th</sup> or 6 <sup>th</sup> grade.

#### 1.a. Additions

## 2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
PP-1	Partner with Local Organization	Board of Health Director	Provide financial contribution to partner with SUASCO WCC	On October 21, 2004 Acton committed to participate in the SUASCO Watershed Community Council's "Storm Water Community Assistance Program" for Storm Water Phase II Permit Year 2 from July 2004 to June 2005.	Continue commitment to participate in the SUASCO Watershed Community Council's "Storm Water Community Assistance Program" for Storm Water Phase II Permit Year 3 from July 2005 to June 2006.
PP-2	Place traveling display at various locations	Board of Health Director	Place display provided by SUASCO at one location throughout the year.	Stormwater Educational Boards have been displayed in the main entrance way to the Town Hall above the Isaac Davis Plow. Display was also brought to Town Meeting and other public events during the course of the year.	Continue to place display provided by SUASCO at one location throughout the year.
PP-3	Poster/Photo Contests	Recreation Department Recreation Director	No Goal Established for Year One	Year two action was delayed until year three.	Hold a Storm Water poster contest for Youth Groups at NARA. Hold Stormwater Photo Contest for High School Students.

PP-4	Organize Public Meetings/Panels	Board of Health	Discuss Storm Water at one public meeting every year.	On February 24, 2003 the Board of Selectmen at their regularly scheduled meeting were updated on the NPDES Permit. They discussed the schedule of tasks, the anticipated costs and the potential of volunteer organizations assistance.	Continue to discuss Storm Water at one public meeting every year.
Revised	PP-5	Stencil Storm Drains	Board of Health	1.1 OAR volunteers stenciled small portion of town 1.2 Submit grant application for new stenciling program	Stream Identification Signs placed at stream and street intersections in conjunction with Acton's Stream Team.

## 2a. Additions

PP-6	<i>Stream Identification Signs</i>	Board of Health	<i>1.2 Submit grant application for the creation and placement of Stream Identification Signs</i>	Now designated as PP-5	
PP-7	<i>Citizen Involved Storm Water Programs</i>	OAR Assabet River Stream Watch	Provide Nashoba River Stream Quality Gauge	The Organization for the Assabet River installed and maintains a water quality gauge at Nashoba Brook.	Maintain Public Education Gauge.

### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
ID-1	Drainage Mapping	Board of Health Health Director	Prepare draft drainage map with watershed delineations.	All existing catch basins, manholes and outfalls have been mapped in a GIS format. With this information in combination with the USGS contour map micro-watersheds were delineated within the Fort Pond Brook and Nashoba Brook watersheds.	Field verify and update draft map features for new construction and 25% of streets older than 1960.
	Revised				
ID-2	Develop/Implement Illicit Discharge Bylaw	Planning Board Town Planner Board of Health Health Director	No Goal Established for Year One	Even though no action was scheduled to be taken in year one, the Board of Health reviewed its regulations and through a series of advertised hearings modified them accordingly.	2.1 Review/Analyze existing bylaws, rules and regulations.
	Revised				
ID-3	Perform Illicit Discharge Detection Campaign	Board of Health Health Director	Submit grant proposal for funding of Acton Watershed Health Protection Program to identify potential problem areas.	On January 10, 2003 the town through its consultant, Woodard & Curran, submitted a grant proposal “Watershed Health Monitoring and Management Plan” to the Massachusetts Office of Coastal Zone Management. The grant application was denied May 23, 2003.	Conduct investigation and sampling of outfalls discharging to Assabet River (303(d)waterway). (Resubmit grant proposal for funding of Acton Watershed Health Protection Program to identify potential problem areas)
	Revised				

ID-4	Correct Illicit Discharges	Board of Health	No Goal Established for Year One	No action taken in year one.	No Goal Established for Year Two.
Revised					

### 3a. Additions

ID-5	On-site Wastewater Impacts	Board of Health	Analyze on-site Wastewater Impacts.	Case study on Impact of Title V issues on communities	No Goal Established for Year Two

## 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
CS-1	Develop/Implement Construction Site Runoff Control Program	Planning Board Town Planner	No Goal Established for Year One.	No action taken in year one.	Begin In-House Assessment of current status of construction site runoff control program.
CS-2	Develop/Implement Erosion And Sediment Control Bylaw	Planning Board Town Planner	No Goal Established for Year One.	No action taken in year one.	Begin In-House Assessment of current status of Erosion and Sediment Control Bylaws, Rules And Regulations.

**4a. Additions**

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**5. Post-Construction Stormwater Management in New Development and Redevelopment**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
PC-1	Develop/Implement Post Construction Runoff Control Program	Planning Board Town Planner	No Goal Established for Year One	No action taken in year one.	Begin In-House Assessment of current status of Post Construction Runoff Control Program.
	Revised				

**5a. Additions**

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## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID#	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
GH-1	Reporting	Public Works Director of Public Works Board of Health Health Director	Create a method to record storm water activities for Good Housekeeping and all Minimum Control Measures (MCM's)	Forms developed for recording Catch Basin cleaning and Street sweeping activities. Reporting system established for any drainage maintenance or repair work or unusual storm water activity.	6.1 Record all storm water management activities. 6.2 Reassess eligibility criteria 6.3 Provide yearly report as required in the General Permit Part II.F.
GH-2	Audit Current Town Facilities	Public Works Director Of Public Works	No Goal Established for Year One	No action taken for year one.	No Goal Established for Year Two
GH-3	Operation and Management Program	Public Works Director of Public Works	1.1 Create list of priority outfalls and complete 1 <sup>st</sup> round of outfall cleaning	1.1 Woodard and Curran has developed a prioritized list of identified outfalls for the Town. 1.2 Tracking records for catch basin cleaning has been delayed until forms have been approved.	2.1 Continue to track records for outfalls cleaned. 2.2 Begin tracking records for catch basins cleaned.

GH-4	Employee Training	Public Works Director of Public Works	1.1 Conduct a department meeting on pollution prevention 1.2 Generate a list of all prior relevant employee training activities.	1.1 On October 2, 2003 a DPW safety meeting was held with 20 DPW employees regarding the importance of proper hazardous materials/waste storage, recordkeeping and housekeeping. 1.2	No Goal Established for Year Two
	Revised	Recycling Program	Public Works Director of Public Works	Review Current Recycling Program & Determine/Implement changes as needed.	In February of 2004 the Health Department reviewed the current programs for recycling hazardous waste and recommended that the programs continue as presently constituted.

#### 6a. Additions

GH-6	Household Hazardous Waste	Board of Health Health Director	Generate Hazardous Waste Guide	Board of Health developed a Resident's Guide to Hazardous Waste Disposal and distributed it to all residents within the sewer service area.	Continue to distribute Guide to targeted populations within the Town.
	Outfall Tracking program	Board of Health Health Director	Begin tracking records for outfalls cleaned	Central Massachusetts Mosquito Control Project has begun tracking records for outfalls cleaned.	Continue to track records for outfalls cleaned.

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 2
TMDL-1	Check Current Impairment List.	Board of Health Director	There are No completed studies for receiving waters in Acton.	Annual check of list has confirmed that a Draft Total Maximum Daily Load (TMDL) Report for Total Phosphorus in the Assabet River (Report # MA 82B-01-2004-01) is available for public comment. Implementation of Report is scheduled to begin in the summer of 2004. Review of the draft report has not thus far identified new implementation requirements for receiving waters in Acton.	Check list annually to determine new implementation requirements.

**7a. Additions**

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**7b. WLA Assessment**

#### **Part IV. Summary of Information Collected and Analyzed**

1. Stream Monitoring Program
  - a. Four rounds of fecal coliform testing in 2003 were conducted at locations in the Fort Pond Brook and Nashoba Brook Watersheds as shown on the map. (see attachment "A")
2. Groundwater Well Monitoring Program
  - a. Monthly rounds of water level and nitrate testing in 2003 were conducted within selected watersheds as shown on the map. (See attachment "B")
3. North Acton Recreational Area (NARA) Pond Monitoring
  - a. Weekly E. coli testing was conducted between May and September at NARA to ensure swimming water quality. (See attachment "C")
4. Household Hazardous Waste Day Collection
  - a. Residential participation at the September Household Hazardous Waste Day Collections was mapped by watershed. (See attachment "D")
5. 319 Grant
  - a. Selected Stormwater discharge points were selected to be analyzed for contaminant levels to determine priority of a site to install a BMP device. (See attachment "E")
6. Alternative Wastewater Treatment Program
  - a. The Board of Health has permitted over three dozen alternative treatment systems in environmentally sensitive areas that are required to provide quarterly or annual effluent monitoring results. (See attachment "F")
7. Landfill Groundwater Monitoring Program
  - a. The Engineering Department conducts annual groundwater analyses at the former Acton Landfill located at 14 Forest Road (see attachment "G"). Results of the 2003 analyses have not identified any action requirements.
8. Hazardous Material Storage Monitoring Program
  - a. The Health Department inspects all commercial facilities that store more than 25 pounds or 25 gallons of hazardous materials or wastes to ensure materials are being stored in proper secondary containment and that releases to the environment are not occurring (see attachment "I").
9. Acton Shoreline Survey
  - a. In 1998 OAR conducted a comprehensive shoreline survey of Acton's two major streams, Nashoba Brook and Fort Pond Brook (see schedule "J"). A follow-up shoreline survey is scheduled in the next few years.

## Part V. Program Outputs & Accomplishments (OPTIONAL)

### Programmatic

Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures	(\$)	

### Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	
Household Hazardous Waste Collection Days		
■ days sponsored	(#)	
■ community participation	(%)	
■ material collected	(tons or gal)	
School curricula implemented	(y/n)	

### Legal/Regulatory

Regulatory Mechanism Status (indicate with "X")	In Place	Prior to Phase II	Under Review	Drafted	Adopted
■ Illicit Discharge Detection & Elimination					
■ Erosion & Sediment Control					
■ Post-Development Stormwater Management					
Accompanying Regulation Status (indicate with "X")					
■ Illicit Discharge Detection & Elimination					

- Erosion & Sediment Control
- Post-Development Stormwater Management

## Mapping and Illicit Discharges

Outfall mapping complete	(%)	
Estimated or actual number of outfalls	(#)	
System-Wide mapping complete	(%)	
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	
Outfalls inspected/screened	(# or %)	
Illicit discharges identified	(#)	
Illicit connections removed	(#)	
% of population on sewer	(%)	
% of population on septic systems	(%)	

Construction

Number of construction starts (>1-acre)	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	
Site inspections completed	(# or %)	
Tickets/Stop work orders issued	(# or %)	
Fines collected	(# and \$)	
Complaints/concerns received from public	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-

construction stormwater control		
Site inspections completed	(# or %)	
Estimated volume of stormwater recharged	(gpy)	

## Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	
Total number of structures cleaned	(#)	
Storm drain cleaned	(LF or mi.)	
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	
Disposal or use of screenings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		
Cost of screenings disposal	(\$)	

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	
Qty. of sand/debris collected by sweeping	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	
Cost of sweepings disposal	(\$)	
Vacuum street sweepers purchased/leased	(#)	
Vacuum street sweepers specified in contracts	(y/n)	

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
■ Fertilizers	(lbs. or %)	
■ Herbicides	(lbs. or %)	
■ Pesticides	(lbs. or %)	

Anti-/De-Icing products and ratios	% NaCl (y/n)	% CaCl <sub>2</sub> (y/n)	% MgCl <sub>2</sub> (y/n)	% CMA (y/n)	% Kac (y/n)	% KCl (y/n)	% Sand (y/n)
Pre-wetting techniques utilized							
Manual control spreaders used							
Automatic or Zero-velocity spreaders used							
Estimated net reduction in typical year salt application							
Salt pile(s) covered in storage shed(s)							
Storage shed(s) in design or under construction							